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China: Railroad Construction Since 1970

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CHINA: RAILROAD CONSTRUCTION SINCE 1970

KEY FINDINGS

- By the end of 1973 the Chinese rail network had been extended to more than 44,000 kilometers (km),¹ a 10% increase in three years and twice the length of the pre-Communist network.
- In 1971-72 a railroad construction boom comparable to the boom of the late 1950s took place; a minimum of 3,540 km of new railroad line were completed, or an average of 1,770 km per year.
- In 1973 the tempo of finished construction dropped sharply, with only about 720 km of line being completed.
- In 1971-73, progress was made in double-tracking important segments of line in the populous East, and several hundred kilometers were electrified, mainly in the mountainous areas of Szechwan and Shensi. Also emphasized was the construction of industrial and mining spurs, new and expanded rail yards and transfer facilities, and additional repair facilities.
- Since 1970, the Southwest and Central-South Regions have been the highest priority areas for new railroad construction; an east-west trunk line has been completed, linking the key internal province of Szechwan directly with the eastern part of the country; and construction has continued at a fast pace on the new north-south trunk line, located west of the main Peking-Canton north-south line.
- China's rail network will expand to perhaps 50,000 km by 1980. China will continue the steady modernization of the system with help from Japan and the West.

1. The length of the network refers to the length of main and branch lines and excludes double-tracks, passing tracks, sidings, spur lines, and the like.

Note: Comments and queries regarding this publication are welcomed. They may be directed to [redacted] of the Office of Economic Research,
[redacted]

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DISCUSSION

Introduction

1. During the early 1960s railroad construction in China was at a low ebb. In the aftermath of the disastrous Leap Forward (1958-60), China had considerable unused rail capacity and thus allocated its investment resources elsewhere. The rail network was expanded by only 6% in the four years 1961-64.

2. A renewed attempt begun in the mid-1960s to expand and improve the network was interrupted by another period of political turbulence, the Cultural Revolution (1966-69). Because of the increase in rail freight traffic as the Cultural Revolution was winding down and the growth of new industrial and mining facilities in outlying areas, the government again embarked on a big rail construction program in the late 1960s and early 1970s.

3. Major railroad construction projects in the PRC have normally been undertaken by railroad engineering divisions of the People's Liberation Army (PLA). These engineering units have specialized in skilled railroad construction work, such as tunneling and bridgebuilding. They have occasionally been used on non-railroad projects where construction was particularly difficult. A highly disciplined, well-trained, and mobile construction force, they have been aided by local gangs of civilian workers who do mostly pick-and-shovel work. In lightly populated areas that have few civilian workers to draw on, the PLA units will do most of the job themselves. Much of the work of the engineering divisions in recent years has been in the rugged central and southwestern sections of the country and in the northeastern border area.

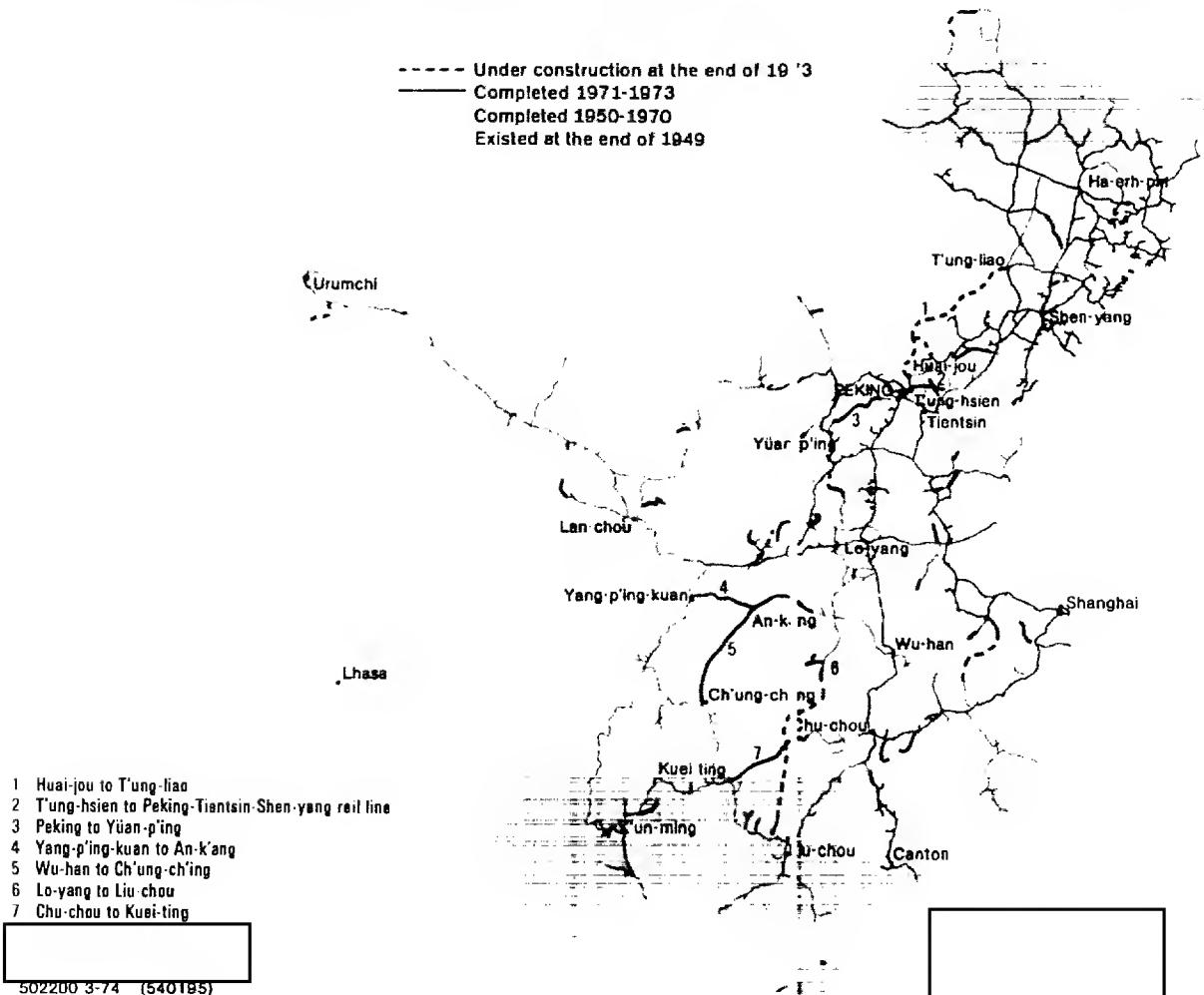
4. This publication examines railroad construction activity in China since 1970, with emphasis on the important new lines constructed during the three years 1971-73. An Appendix contains information on both major and minor standard gauge lines, including many branch lines. The standard breakdown of China into six regions (Northeast, North, East, Central-South, Northwest, and Southwest) has been used. An outline map, Figure 1, gives the general pattern of railroad development in China. A foldout map inside the back cover provides detail on the whole system as of February 1974.

Pace of New Railroad Construction

5. Construction of railroads in China revived strongly in 1969-70 and accelerated in 1971-72. This burst of construction activity is reminiscent

Peoples Republic of China: RAILROAD DEVELOPMENT

Figure 1



of the 1950s. During the period of the First Five-Year Plan (1953-57) an average of 1,070 km of new railroad line was opened to traffic each year (see Table 1), and 11% of state investment in capital construction was expended on the railroads.

6. In late 1970, Premier Chou En-lai announced a new Fourth Five-Year Plan for 1971-75, without providing details on policy or targets.

Table 1

China: Railroad Line Completed¹

	Kilometers	Approximate Average Per Year
	Total	Per Year
1953-57	5,340	1,070
1958 - mid-1961	3,426	980
Mid-1961 - mid-1964	984	330
Mid-1964 - fall 1965	1,408	1,130
Fall 1965 - fall 1968	1,861	620
Fall 1968 - end of 1970	1,951	870
1971-73	4,260	1,420
1971-72	3,540	1,770
1973	720	720

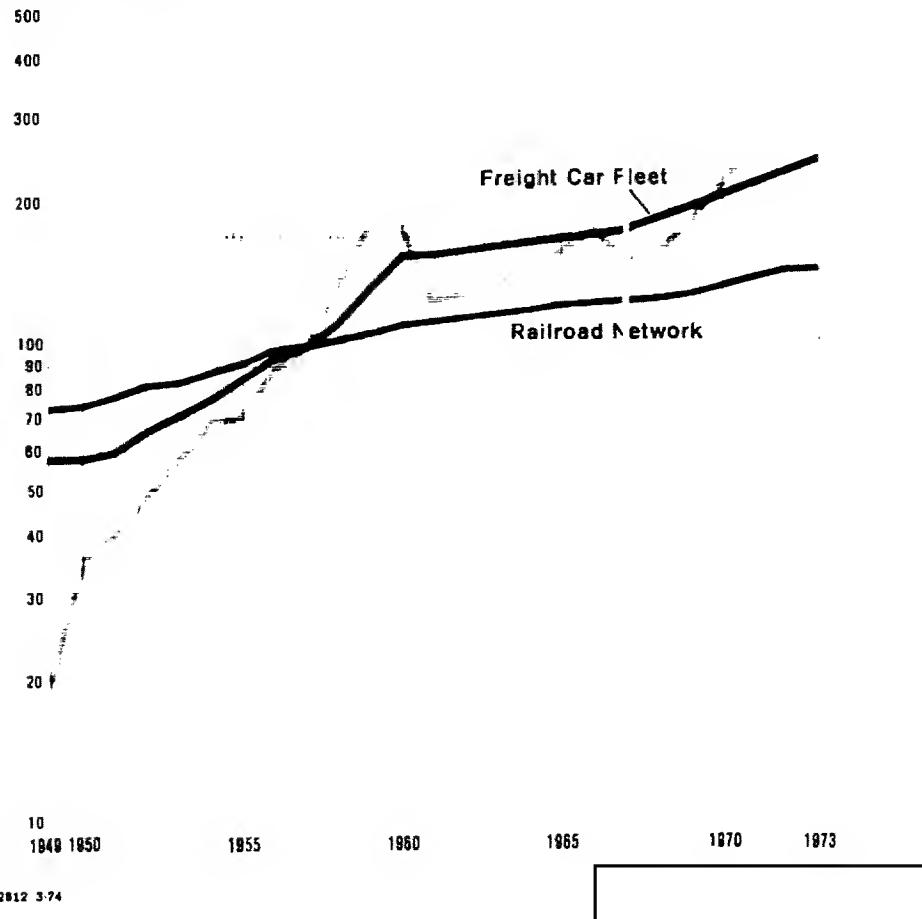
1. These data are based on satellite photography, material published by the Chinese in the press, and Chinese railroad passenger timetables.

One priority under this plan was improvement of the internal transportation system. [redacted] 15% of total state investment was earmarked for railroad expansion during 1971-75. State investment in railroad equipment and facilities probably had been beefed up as early as 1969, and tangible results already were apparent in 1971-72, when a minimum of 3,540 km of new railroad line was completed. The two years were also noteworthy for a crash program to upgrade all aspects of the existing network. Figure 2 compares the growth of the railroad network with the growth of rail freight traffic and the freight car fleet.

7. In 1973 the tempo of finished rail construction slowed perceptibly. We surmise that a planned phase in railroad construction had been largely completed and/or that the great increase in resources allocated to the strengthening of industry and agriculture precluded a continued high level of railroad construction. Track laid in 1973 amounted to about 720 km, compared with an average of 1,770 km per year in 1971-72. Work was nearly completed or suspended on projects in the Southwest and Northwest and continued slowly on two lines in the East. In the North, construction was initiated on a couple of bypass lines and in the Northeast on a new line with strategic significance. In the Central-South Region, construction continued at an intense pace on the new north-south line. This general pattern is consistent with exhortations by Peking to

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Rail Freight Traffic, and the Freight Car Fleet**

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construction officials throughout 1973 to concentrate on and finish up key investment projects.²

Regional Pattern of Construction

8. The highest priority areas for new railroad construction in China in 1971-73 were the Southwest and Central-South Regions. More than 2,000

2. At the same time, the Chinese have been working feverishly to complete the Tan-Zam railroad in Africa ahead of schedule. Construction on this 1,850-km rail link between the copper belt of Zambia and the Tanzanian port of Dar es Salaam was formally inaugurated in October 1970 with completion scheduled for 1975 or 1976. The 965-km section in Tanzania, which traverses the most difficult terrain of the entire line, was finished in August 1973. At the peak of activity an estimated 15,000 Chinese technicians and laborers and 35,000 Tanzanians were employed on the project. Completion of tracklaying on the entire line probably will take place by the end of 1974.

km of new rail line were completed in these areas, almost half of the national total:

<u>Railroad Line Completed</u>		
	Kilometers	Percent
Total	4,260	100
Northeast	590	14
North	655	15
East	565	13
Central-South	1,020	24
Northwest	385	9
Southwest	1,045	25

Southwest

9. During the latter part of the 1960s and the early 1970s the Southwest Region of China was a priority area for new railroad construction. The highlight was the completion in 1970 of the Ch'eng-tu - K'un-ming line, one of the world's greatest engineering projects. This line, built at a cost of \$3 billion, was the most ambitious and probably the most expensive engineering project the PRC has ever undertaken.

10. Another recently completed line is the 1,350-km Wu-han - Ch'ung-ch'ing line, a major portion of which is in the Southwest Region. This line has not been opened to regular rail traffic as yet; many facilities necessary to the operation of the line are still in the early stages of construction. Because the line is subject to landslides and flooding, considerable effort will be required to keep it open. The line, which provides the first direct rail route from the Szechwan Basin to the eastern part of China, connects with the two major north-south rail lines at Hsiang-fan and Wu-han.

11. Several important branch lines (listed in the Appendix) were also completed in 1971-73 in the Southwest. Generally these lines serve extensive new mining operations and related industries.

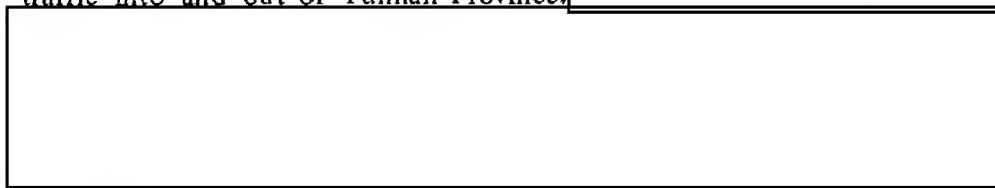
Central-South

12. Construction in the Central-South Region during 1971-73 was dominated by work on two major lines: the north-south Lo-yang - Liu-chou line, and the east-west Chu-ehou - Kuei-ting line. Several important branch lines were also completed in this region by the end of 1972 (see the Appendix).

13. Construction of the 1,400-km Lo-yang - Liu-chou rail line (formerly known as the Lo-yang - Lou-ti line) - the major new north-south line in Honan, Hupeh, Hunan, and Kwangsi Province; - progressed rapidly after 1969. By the end of 1970 the line was complete to the Yangtze River, where the fourth major bridge to span the river was nearing completion. By July 1972, rail construction activity in the early stages extended as far south as Huai-hua on the Chu-chou - Kuei-ting line. By August 1972, new construction running north from the vicinity of Liu-chou had been confirmed as a major new rail line, which would extend north to Huai-hua and link up with the line being built south from the Yangtze River. By late 1973, track had been laid south from the Yangtze to the border of Hunan Province, and an intense effort to extend the roadbed was taking place both north and south of Huai-hua. The Lo-yang - Liu-chou line will provide a third route for heavy north-south traffic. Already it is opening up new areas for industrial development.

14. The 790-km Chu-chou - Kuei-ting line was completed in 1972 after an intensive construction effort. Whereas the line had appeared to be abandoned in 1969, by February 1972 almost 400 km had been constructed west of Hsin-hua. The line was complete before the end of the year. This line slashes the distance between the main north-south line at Chu-chou and points west of Kuei-yang. It also will aid in the economic development of Kweichow and Hunan Provinces.

15. The major rail lines recently completed and opened to traffic in Southwest and Central-South China have facilitated the movement of rail traffic into and out of Yunnan Province.



North

16. Several important lines in North China were completed or substantially extended in 1971-73. The 400-km Peking - Yuan-p'ing line, on which construction was resumed in 1969, was completed by January 1972. This line provides an additional route to the interior from Peking and opens parts of Shansi and Hopeh Provinces to mining and industrial development. Numerous industrial and mining spurs running from the main line are already in use. Nearby, the Ning-wu - Ko-lan branch line, completed in June 1971, provides rail service to the Wu-chai missile facilities and also supports agricultural activity in the area.

17. Between December 1972 and March 1973, construction began on a new 182-km rail line running east from Peking toward a point north

of T'ang-shan on the Peking - Tientsin - Shen-yang rail line. In the fall of 1973, construction was proceeding rapidly, with track being laid from both ends of the line. Only the 50-km center section remained to be completed. This line will bypass the major industrial center of Tientsin and the port of T'ang-ku and provide a shorter and faster rail route to northeastern China by way of the double-tracked coastal rail line through Shen-yang.

18. Work also continued on the 190-km Hsiang-yuan - Yu-t'zu line, the northern extension of the Lo-yang - Liu-chou line. Although only 58 km of track were laid during 1971-73, much of the roadbed was ready for track, most bridge piers were complete, and roadbed construction was in progress on the remainder of the line.

Northeast

19. Emphasis in the Northeast in 1971-73 was placed on (a) continuing a line into the forestry regions of Heilungkiang Province, (b) building connecting segments between several of the main trunk lines in order to improve the flexibility of the system, and (c) initiating construction on a new line with both economic and strategic significance. Several key branch lines were also completed, as indicated in the Appendix.

20. The 490-km K'u-lu-ch'i - Mo-ho area rail line was finished by November 1972 as far as a point about 217 km northwest of Ku-ch'i-ku. As of September 1973, further roadbed construction was observed extending southward. This extension apparently will connect with the end of the line north of Chin-ho. The new line serves major forestry and mining activities in this area and provides improved access to the Sino-Soviet border.

21. A major 240-km connecting line was completed in November 1972 in Liaoning Province between Chin-hsi on the Peking - Shen-yang line and Li-chia-wo-p'eng on the interior Peking - Hsin-min line. The new line improves the flexibility of the rail net in this section of the Northeast and opens up a rugged area of Liaoning Province to further industrial development.

22. Another connecting link completed in June 1971 runs between Ch'ang-ch'un and Ch'ien-kuo-erh-lo-ssu. This line supports the petroleum industry by providing a shorter route from the Ta-ch'ing oil fields -- which produce about a fourth of China's petroleum -- to the major cities and refineries along the Shen-yang - Ch'ang-ch'un rail line.

23. Construction on the 700-km Huai-jou - T'ung-liao line was initiated after April 1973. By the end of the year, construction on segments

of the line was under way northeast of Huai-jou; in the vicinity of Ch'eng-te, Lung-hua, and Ch'ih-feng; and southwest of T'ung-liac. When complete this line will open hitherto inaccessible areas of Hopeh, Liaoning, and Kirin to economic development and will improve logistics for military units northeast of Peking.

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it had been rumored that construction of the line was to be undertaken by units of the Railroad Engineering Corps.

East

24. In the East, work continued on the Wu-hu - Kuei-ch'i line. By September 1973 the southern segment of this line was complete to a point 42 km north of Lo-p'ing and the northern segment to a point 47 km southeast of the junction with the Wu-hu - T'ung-ling branch line. The Sui-ch'i - Fu-yang line, which serves local agricultural and industrial activity, was complete in March 1971. Several other important branch lines were also finished by the end of 1972 (see the Appendix).

Northwest

25. In the Northwest, work progressed on several key lines in 1971-73 and started on a new line that eventually may extend to the far western part of Sinkiang Province. Construction continued on the 58-km northwest extension of the projected 1,200-km Lan-chou - Tsaidam Basin line and on the 50-km mining spur extending north from the head of construction on the main line. At the end of 1972, construction was complete on the main line extension, and by the end of 1973, construction was probably also complete on the mining spur. No evidence has yet come to light of further construction westward along the projected alignment of the main line toward the Tsaidam Basin. If the main line is eventually extended to the west, it will improve access to the mineral-rich Basin and to the strategically important Tsinghai-Tibet highway.

26. Between June 1971 and February 1972 a new rail construction project was started in the vicinity of the Turfan rail-to-road transshipment point on the Lan-chou - Urumchi line in Sinkiang Province. During April-October 1972, construction progressed slowly west-southwest from Turfan Station for about 70 km. By March 1973 a telecommunications line extended 27 km farther to the southwest.

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The purpose of this rail construction and the eventual terminus of the line have not been determined. However, the line seems to run generally parallel to, but northwest of, the road that connects Turfan Station with Kashgar, some 1,200 km to the southwest. The rail line may follow the road for at least 230 km.

where another road branches off to the south

the line is to be completed to K'u-erh-le by 1974 and then is to be extended to Kashgar.

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27. Other important lines in the Northwest include

- the Yang-p'ing-kuan - An-k'ang line, which was completed in October 1972 and connects the Pao-chi - Ch'eng-tu line with the Wu-han - Ch'ung-ch'ing line;
- the Yen-liang - Ch'u-wo-hsien line, on which construction was complete in 1971 to the Huang Ho, where a new rail bridge was nearly finished in November 1973; and
- the Ho-chia-ch'uan - Ta-la-ch'ih area line, which was built through rugged terrain to a mining area north of Ta-la-ch'ih and will serve mining and industrial facilities along the route.

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Double-Tracking and Electrification

28. During 1971-73 the Chinese pushed on with their double-tracking program, but they have not emphasized this aspect of railroad development. In March 1971, double-tracking of a 30-km segment of the Pao-chi - Ch'eng-tu line was concluded. This project involved the construction of eight major bridges, eight large tunnels, and numerous smaller bridges and tunnels. In January 1972, double-tracking of the final 11 km of the 85-km rail segment between the west suburbs of Peking and Huai-lai was also completed. These two projects were designed to increase line capacity in sections of the country where difficult terrain predominates. The final gap in double-tracking on the Peking - Ta-t'ung line was closed in March 1973, when construction was finished on two bridges northeast of Huai-an.

29. Further double-tracking was also under way in 1972-73 on several sections of the Tientsin - Suchow line. In March 1973 a 20-span bridge and 5 km of track paralleling the existing rail line were completed about 5 km south of Te-chou. Between Tsinan and Tai-an a total of about 56 km had been double-tracked, and roadbed and bridge construction were continuing along three other short segments. Once the Tientsin-Suchow line, which carries Peking-Shanghai traffic, is completely double-tracked, the capacity of China's most easterly north-south trunk line will be substantially increased.

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30. Another important double-tracking project was [redacted] between Kuei-yang and Kuei-ting in Kweichow Province. This project will eliminate a bottleneck caused by the completion of the Chu-chou - Kuei-ting line in 1972. Once the new double-tracking project is finished, traffic will be able to flow freely on the major north-south line between Ch'ung-ch'ing and Liu-chou and the major east-west line between Chu-chou and K'un-ming, both of which use the same section of track between Kuei-yang and Kuei-ting.

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[redacted]

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32. [redacted] the Chinese are interested in improving their domestic transport system through the electrification of existing rail lines. Advantages of electrification include improved operating efficiency and reduced operating costs. According to the Chinese, electrification of the Feng-hsien - Kuang-yuan section of the Pao-chi - Ch'eng-tu line means that about 10,000 additional metric tons of freight can be carried on this section each day, compared with the previous level of steam operations. With possibly 90 large mainline electric locomotives available as of the end of 1973, the Chinese undoubtedly will electrify additional sections of track, particularly where difficult terrain predominates and where electrification already is under way.

Spur Lines, Rail Yards, and Transfer Points

33. In addition to the construction of main and branch lines, double-tracking, and electrification, rail construction projects under way in China include numerous industrial and mining spurs, new and expanded rail yards and transfer facilities, and additional repair facilities. This fleshing out of the rail network points up the tremendous amount of new industrial and mining activity taking place in widespread areas of China in response to the basic policy of development of the hinterland.

34. A spiderweb of spur lines to new industrial and mining facilities was built in 1971-73. At least 145 spur lines totaling nearly 900 km were completed in 1972 alone, and an additional 76 spurs totaling about 520 km were observed under construction. Table 2 contains a breakdown of spur line construction, by region, in 1972. The Central-South Region led

Table 2

China: Construction of Spur Lines
1972

Region	Completed			Under Construction		
	Number	Kilometers	Percent	Number	Kilometers	Percent
Total	145	892	100	76	520	100
Northeast	24	103	11	10	93	18
North	27	159	18	11	49	9
East	24	239	27	10	70	14
Central-						
South	45	221	25	26	163	31
Northwest	15	73	8	12	113	22
Southwest	10	97	11	7	32	6

the way in this activity with about one-third of the total number of spurs completed and under construction. Spur construction projects were particularly evident on new rail lines such as the Peking - Yuan-p'ing, Wu-han - Ch'ung-ch'ing, and Lo-yang - Liu-chou lines. In 1973, less than 200 km of spur lines were completed, but some 675 km were observed to be under construction. Completed spur construction, which dropped off noticeably in the first half of 1973, appears to be picking up again in late 1973 and in early 1974.

35. The spur lines completed or under construction in 1972 serviced a great variety of installations. More than 200 facilities [redacted] categorized as indicated in the following tabulation:

Type of Facility	Percent
Total	100
Manufacturing	33
Mining and associated activities	20
Storage	12
Thermal power	5
Miscellaneous	10
Unidentified	20

The manufacturing enterprises included 19 light and 9 heavy fabrication facilities, 5 nitrogen fertilizer plants, 5 vinylon plants, 5 chemical plants, 5 iron smelters, 3 cement plants, 3 petroleum refineries, and 2 iron and

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steel plants. The miscellaneous facilities included timber transfer areas, sand and gravel excavations, military installations, and port facilities.

36. Construction of rail yards also flourished in 1972-73, when at least 40-50 yards were either newly completed or expanded and another 20-30 were under construction or being expanded. For example:

- Just north of Suchow, construction was continuing on a large rail complex about 5 km long, which included possible repair facilities, new station buildings, and bypass track construction, as well as four parallel yards.
- In 1972, a new 25-track classification yard and two holding or forwarding yards were nearly complete at the north railroad yard in Nan-ching, and construction was continuing at a moderate rate on a 20-25-track yard at Pang-pu.
- At the major rail junction of Chu-chou on the Peking - Canton line a 27-track classification yard was completed by March 1973.
- Near Hsiang-fan, at the junction of the Wu-han - Ch'ung-ch'ing and Lo-yang - Liu-chou lines, construction is nearing completion on a large rail complex including a car repair facility, a locomotive service area, and a 30-track yard.
- At Ch'in-huang-tao, on the Peking - Shen-yang line, the rail yard has been doubled in size in order to serve a petroleum storage area and transfer pier, which is being built at the terminus of a new petroleum pipeline.
- Major modifications at the P'ing-hsiang rail yard on the China - North Vietnam border were essentially complete by March 1973. A new standard-gauge yard doubles the holding and forwarding capacity of the rail facility, and a new petroleum storage area and spur double the petroleum storage capacity.
- The standard-gauge classification yard at K'un-ming in the far southwest was being doubled in size from 12 to 24 tracks in early 1973.

37. Expansion of railroad repair facilities is typified by the completion of locomotive repair shops near Ling-ch'iu on the Peking - Yuan-p'ing line, construction of a new repair facility west of Mien-hsien on the

Yang-p'ing-kuan - An-k'ang line, completion of a locomotive repair facility at the west end of the Pao-chi east rail yard on the Cheng-chou - Pao-chi line, construction of a diesel locomotive repair facility near An-fu on the Lo-yang - Liu-chou line (which confirms use of diesel locomotives on this line), building of a car repair facility and locomotive service area near Hsiang-fan, and construction of a locomotive repair facility near Suchow.

Prospects

38. The Chinese railroad network totaled more than 44,000 km at the end of 1973, a 10% increase over the length at the end of 1970. Of all the major nations, the PRC has by far the smallest number of kilometers of rail line per square kilometer of area. The density of the rail network in China about equals that of Egypt, Morocco, and Syria and is only slightly greater than that of the Philippines, Iraq, Jordan, Brazil, and Ecuador. In total length, the Chinese network about equals one-seventh of the US network.

39. With rail traffic increasing and new industrial facilities springing up in remote areas, China is greatly in need of additional connecting rail links. Consequently, the rail construction program probably will continue at a fairly high level at least during the remaining years of the 1970s. As in the past, this program will continue to emphasize the goals of dispersing China's industrial base and providing more efficient logistical support to critical areas for national defense purposes. The rail net will continue to be the dominant form of transportation for the expeditious long haul of freight and passengers; in the eastern third of China, the waterways will continue to move large amounts of long-haul bulk traffic where speed is not a criterion.

40. In the fall of 1973, Peking dispatched a group of railroad officials to Tokyo to discuss possible Japanese participation in a massive reconstruction of the Chinese rail system. The group surveyed available Japanese railroad technology and railroad-related industries. Areas of particular interest included

- super express lines,
- automatic train control devices,
- automated track maintenance and cargo handling equipment,
- automatic signaling equipment,

- production of electric locomotives and other rolling stock, and
- computerized ticket vending machines.

41. The Chinese also were looking for help in carrying out their current modernization plans, including electrification of existing lines and the setting up of high-speed cargo lines. However, their major interest appeared to be in railroad yard facilities, including ways of updating and improving the efficiency of their own yards. In broader perspective, the Chinese are making special efforts to study the latest Japanese railroad technology and to enlist Japanese help in speeding up modernization of the relatively backward Chinese rail system.

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APPENDIX

Status of Construction of Main and Branch Railroad Lines in China

Region and Rail Line	Province	Start of Construc- tion	Approximate Length Between Terminals	Kilometers				Remarks
				1966	1970	1972	1973	
Northeast								
K'u-lu-ch'i (50°24'N., 124°10'E.) to Mo-ho area (52°58'N., 122°22'E.)	Heilungkiang	After 1960	490 48 ¹	100	375	490	490	This line was completed by early November 1972 as far as a point about 217 km northwest of Ku-eh'i-ku. As of September 1973, further construction was observed extending toward the south. This extension apparently will connect with the end of the line north of Chin-ho. Roadbed construction and ground scarring were in evidence. This line, which has strategic value because of its proximity to the Sino-Soviet border, is intended primarily to serve major forestry and mining activities in this area.
Chin-hsi (40°45'N., 120°50'E.) to Li-chia-wo-p'eng (40°54'N., 119°03'E.)	Liaoning		1971	240	0	0	240	240
Ch'ang-ch'un (43°54'N., 125°20'E.) to Ch'ien-kuo-erh-lo-ssu (45°08'N., 124°48'E.)	Kirin	1958	140	0	4	140	140	This line, completed in June 1971, will provide a shorter route from the Ta-ch'ing oil fields to the major cities and refineries along the Shen-yang-Ch'ang-ch'un rail line.
K'ai-yuan (42°32'N., 124°02'E.) branch line	Liaoning	1969	85	0	0	85	85	This branch line serves an iron mine and smelter.
Pei-p'iao (41°48'N., 120°46'E.) branch line	Liaoning	1969	63	0	57	63	63	This branch line serves a probable cement plant and a mining area.
Branch line extension at Hsi-nan-ch'a (43°32'N., 127°47'E.)	Kirin	1970	12	0	0	0	7	This line is being extended, probably to serve lumber operations in the area.
Huai-jou (40°20'N., 116°37'E.) to T'ung-liao (43°37'N., 122°16'E.)	Hopch Liaoning Kirin	1973	700	0	0	0	0	Construction on the section of this line between Ch'eng-te (40°58'N., 117°53'E.) and Ch'ih-feng (42°16'N., 118°58'E.) was initiated after April 1973. As of November 1973, construction extended for about 70 km north from Ch'eng-te and preparations for construction were visible intermittently for 77 km west of Ch'ih-feng. About 5 km of roadbed had been completed.
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Region and Rail Line	Province	Start of Construction	Approximate Length Between Terminals	Kilometers				Remarks
				1966	1970	1972	1973	
Approximate length completed, 1971 72					582			
Additional length completed, 1973							.7	
North								
Peking (39°56'N., 116°24'E.) to Yuan-ping (38°24'N., 112°46'E.)	Hopeh Shansi	1958	400	90	111	400	400	This line, on which construction was resumed in 1969, was completed by January 1972. It provides an additional route to the interior from Peking and opens parts of Shansi and Hopeh Provinces to mining and industrial development. Numerous industrial and mining spurs running from the main line are already in use.
Ilsiang-yuan (36°30'N., 113°02'E.) to Yu-tz'u (37°41'N., 112°44'E.)	Shansi	1970	190	0	0	21	58	This section of rail line will complete the northern segment of the Lo-yang Liu-chou line. By mid-1973, much of the remaining roadbed was ready for track, most bridge piers were complete, and roadbed construction was in progress elsewhere.
T'ung-hsien (39°54'N., 116°39'E.) to Peking Tientsin Shenyang rail line, at 39°45'N., 118°39'E.	Hopeh	1973	182	0	0	0	132	In the fall of 1973, construction on this line was proceeding at a rapid pace with track being laid from both ends. The roadbed was completed on the 50-km center section from 39°59'N., 117°24'E. to 39°50'N., 117°55'E. The line will bypass the major industrial center of Tientsin and the port of T'ang-ku, and will provide a shorter and faster rail route to northeastern China by way of the double-tracked coastal rail line through Shenyang.
Ning-wu (39°02'N., 112°16'E.) to Ko-lan (38°42'N., 111°31'E.)	Shansi	1968	95	0	87	95	95	This line was complete in June 1971 to its apparent terminus about 3 km west of Ko-lan. The 8-km spur leading to the Wu-hai missile facilities was complete in October 1971.
T'ang-shan (39°37'N., 118°12'E.) branch line	Hopeh	1970	70	0	0	70	70	This line serves various industrial facilities. It could also be a segment of a projected line between T'ang-shan and IIsing-lung.
Loop branch line, I-cheng area (35°43'N., 111°42'E.)	Shansi	1970	77	0	0	77	77	This line extends an existing 31-km branch line to form a 108-km loop branch line serving numerous large industries in various stages of construction.
North edge of Tientsin (39°11'N., 117°12'E.) to Peking Tientsin Shenyang rail line, at 39°05'N., 117°41'E., 8 km north of T'ang-ku	Hopeh	1973	45	0	0	0	0	This line will provide a bypass around the industrial center of Tientsin and the port of T'ang-ku, and will expedite through traffic moving on the Peking Shenyang line.
Approximate length completed, 1971 72					485			
Additional length completed, 1973							169	

Region and Rail Line	Province	Start of Construction	Approximate Length Between Terminals	Kilometers				Remarks
				1966	1970	1972	1973	
East								
Wu-hu (31°21'N., 118°22'E.) to Kuci-ch'i (28°17'N., 117°11'E.)	Anhwei	1958	510	0	60	119	185	By September 1973 the southern segment of this line was complete to a point 42 km north of Lo-p'ing and the northern segment to a point 47 km southeast of the junction with the Wu-hu T'ung-ling branch line.
Sui-ch'i (33°55'N., 116°46'E.) to Fu-yang (32°57'N., 115°51'E.)	Anhwei	1969	152	0	140	152	152	This line, which serves local agricultural and industrial activity, was complete in March 1971.
Hang-chou (30°15'N., 120°10'E.) to Liu-tung-ch'iao (31°02'N., 119°31'E.)	Chekiang	1969	160	0	56	160	160	This branch line connects the Liu-tung-ch'iao area with the national railroad system. Although the Wu-hsing Rocket Engine Test Facility is about 5 km east of the line, there is no indication of spur construction to the facility.
Wu-hu (31°21'N., 118°22'E.) to T'ung-ling (30°56'N., 117°50'E.)	Anhwei	1958	90	68	70	90	90	This line, which ends at the T'ung-ling port facilities on the Yangtze River, was complete some time in 1971.
Branch line northwest of Suchow (34°15'N., 117°12'E.)	Kiangsu	1970	75	0	0	75	75	This branch line terminates at a thermal power plant.
Wang-chu-chuang (36°49'N., 118°16'E.) to T'ai-an (36°11'N., 117°07'E.)	Shantung	1970	148	0	0	18	53	When this line is completed, it will enable traffic between Tsing-tao and south China to bypass Tsinan.
Hsi-yang (37°27'N., 118°29'E.) branch line	Shantung	1968	47	0	20	47	47	This branch line serves the Kwangjao oil field support base at Hsi-yang.
Fen-i (27°49'N., 114°14'E.) branch line	Kiangsi	1969	151	0	0	151	151	This branch line terminates at an ore loading facility 27 km west of Yung-hsin.
Approximate length completed, 1971-72					466			
Additional length completed, 1973							101	

Region and Rail Line	Province	Start of Construction	Approximate Length Between Terminals	Kilometers					Remarks
				1966	1970	1971	1973		
Central-South									
Lo-yang (34°41'N., 112°28'E.) to Liu-chou (24°19'N., 109°24'E.)	Honan Hupeh Hunan Kwangsi	1958	1,400	20	740	770	820	This line was complete from Lo-yang to the Yangtze River by the end of 1970, and roadbed construction extended 110 km south of the river by September 1971. In July 1972, rail construction activity in the early stages extended another 320 km to the south to Hsien-hua. At the same time, new rail construction [redacted] running north from the Liu-chou-Kuei-yang line near Liu-chou, apparently to connect with the segment being built south from the Yangtze.	
Chu-chou (27°50'N., 113°09'E.) to Kuei-ting (26°34'N., 107°13'E.)	Hunan Kweichow	1958	790	200	240	790	790	[redacted] By late 1973, track had been laid south from the Yangtze River to the border of Hunan Province and an intense construction effort was taking place on the roadbed both north and south of Hsien-hua.	
Li-ling (27°39'N., 113°30'E.) to Ch'a-ling (26°48'N., 113°32'E.)	Hunan	1970	121	0	0	12	121	This branch line serves a large mining area north of Ch'a-ling.	
P'ing-ting-shan (33°45'N., 113°18'E.) to Shang-tien (33°13'N., 113°26'E.) branch line	Honan	1970	72	0	0	7	72	This branch line serves a large area of unidentified construction containing extensive housing.	
I-chang (30°42'N., 111°17'E.) branch line	Hupeh	1970	56	0	0	5	56	This branch line serves various industries in the I-chang area.	
Hsi-ch'eng-liu (35°04'N., 112°29'E.) branch line	Honan	1970	21	0	0	2	21	This branch line serves a fabrication industry.	
Ho-ch'ih (24°42'N., 108°03'E.) branch line	Kwangsi	1970	70	0	0	7	70	The purpose of this branch line cannot be determined.	
Lo-ch'eng (24°47'N., 108°54'E.) branch line extension	Kwangsi	1970	42	0	0	42	42	The extension of this branch line serves a mining area.	
Hai-k'ou (20°02'N., 110°20'E.) Hainan Island, local rail line	Kwangtung	1970	8	0	0	8	8	This local rail line serves Hai-k'ou, Shu-ch'ang, and Hai-k'ou port facility.	
Approximate length completed, 1971-72							971		
Additional length completed, 1973							50		

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Region and Rail Line	Province	Start of Construction	Approximate Length Between Terminals	Kilometers				Remarks
				1966	1970	1972	1973	
Northwest								
Lan-chou (36°03'N., 103°41'E.) to the Tsaidam Basin	Kansu Tsinghai	1958	1,200	317	317	375	375	At the end of 1972, construction was complete on the 58-km northwest extension of this line beyond Hsi-yen. By the end of 1973, construction was probably also complete on the 50-km mining spur extending north from the head of construction on the main line. No evidence has yet come to light of further construction westward along the projected alignment of the main line toward the Tsaidam Basin and the Tsinghai-Tibet highway.
Yang-p'ing-kuan (33°02'N., 105°56'E.) to An-k'ang (32°41'N., 109°02'E.)	Shensi	1969	320	0	137	320	320	This line was complete by October 1972, and was probably being electrified by August 1973. The line opens the Han River valley for industrial development.
Yen-liang (34°39'N., 109°12'E.) to Ch'u-wo-hsien (35°36'N., 111°21'E.)	Shensi Shansi	1958	272	0	122	193	193	By June 1971, construction on this line was complete from Yen-liang northeast to the Huang Ho at 35°39'N., 110°38'E. By November 1973, construction was nearly complete on a major rail bridge over the Huang Ho. No new construction [redacted] on the previously abandoned 74 km of roadbed extending east from the river to Ch'u-wo-hsien.
Ho-chia-ch'u'an (36°34'N., 104°10'E.) to Ta-la-eh'ih area (36°41'N., 105°03'E.)	Kansu	Middle or late 1950s	101	0	29	101	101	This line was completed by April 1972. It extends to a mining area north of Ta-la-eh'ih and will serve mining and industrial facilities along the route.
Turfan (42°56'N., 89°10'E.) branch line	Sinkiang	1971	N.A.	0	0	0	0	This project was started in the vicinity of the Turfan rail-to-road transshipment point in Sinkiang Province. The purpose and eventual terminus of the line have not been determined. At the end of 1972 the intermittent roadbed alignment extended for about 70 km westward to the edge of the Turfan Depression. By March 1973 a telecommunications line extended 27 km farther to the southwest [redacted]
Approximate length completed, 1971-72				384	~	0	0	[redacted]
Additional length completed, 1973								[redacted]

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Region and Rail Line	Province	Start of Construction	Approximate Length Between Terminals	Kilometers				Remarks
				1966	1970	1972	1973	
Southwest								
Wu-han (30°35'N., 114°16'E.) to Ch'ung-ch'ing (29°34'N., 106°35'E.)	Hu-peh Shensi Szechwan	1958	1,350	420	150	980	1,350	Tracklaying was complete on this rail line by November 1973. However, many facilities necessary to the operation of the line when it is opened to regular rail traffic were still in the early stages of construction. Once operations begin, considerable effort will be required to keep the line open because of landslides and flooding. The line connects the Szechwan Basin with the eastern railroad network at both Hsiang-fan and Wu-han. It has already permitted extensive industrial development in previously inaccessible areas along the route.
Chen-i (25°36'N., 103°49'E.) to Tu-cheng (26°01'N., 104°31'E.)	Yunnan Kweichow	1967	127	0	52	106	127	This branch line, completed in May 1973, serves extensive mining operations and related industries. It passes through difficult terrain requiring numerous bridges and tunnels. Two of the tunnels are more than 16,000 feet in length.
Branch line southwest of K'un-ming (25°02'N., 102°43'E.)	Yunnan	1969	31	0	0	31	31	This branch line connects a large mining area near Chin-ning (24°40'N., 102°35'E.) with the Ch'eng-tu-K'un-ming line at a point about 19 km southwest of K'un-ming.
An-shun (26°15'N., 105°56'E.) branch line	Kweichow	1970	37	0	0	37	37	This branch line extends north from An-shun and serves several new light fabrication industries.
Approximate length completed, 1971				72		652		
Additional length completed, 1973						391		

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Railroads
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